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Katz

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[54] **INTERCHANGEABLE CLASP**

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[21] Appl. No.: **724,604**

[22] Filed: **Sep. 30, 1996**

[51] **Int. Cl.**[6] **A44B 17/00**; A44C 5/14

[52] **U.S. Cl.** ..... **24/589**; 24/265 B; 24/265 WS; 24/616; 24/356; 63/1.1; 63/1.17

[58] **Field of Search** ..... 24/589, 616, 633, 24/640, 630, 669, 702, 697.1, 13, 356, 573.5, 644, 653, 612–617, 265 EC, 265 WS, 265 B; 63/1.1–1.17, 20, 21, 23, 42, 43, 33

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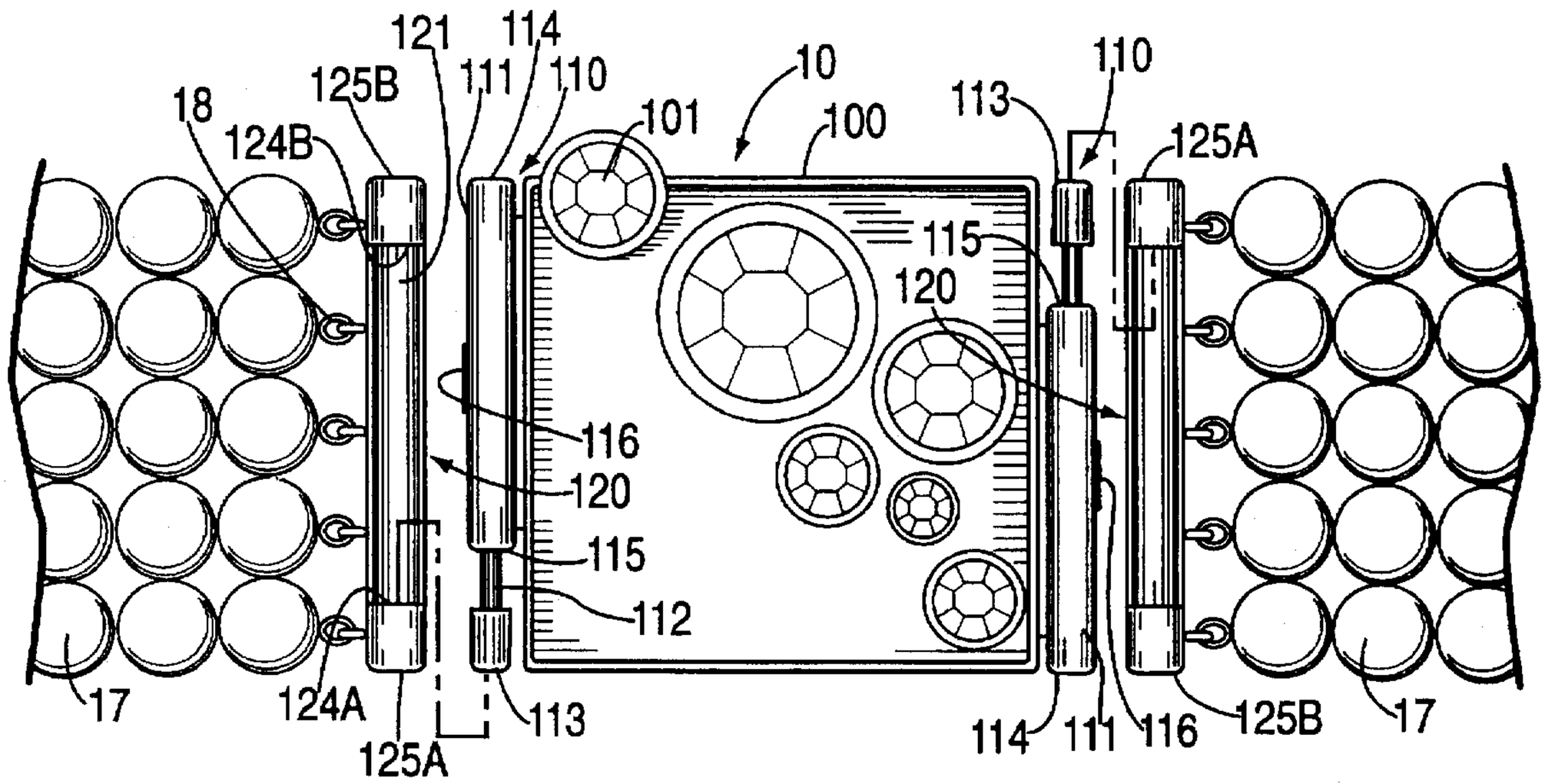
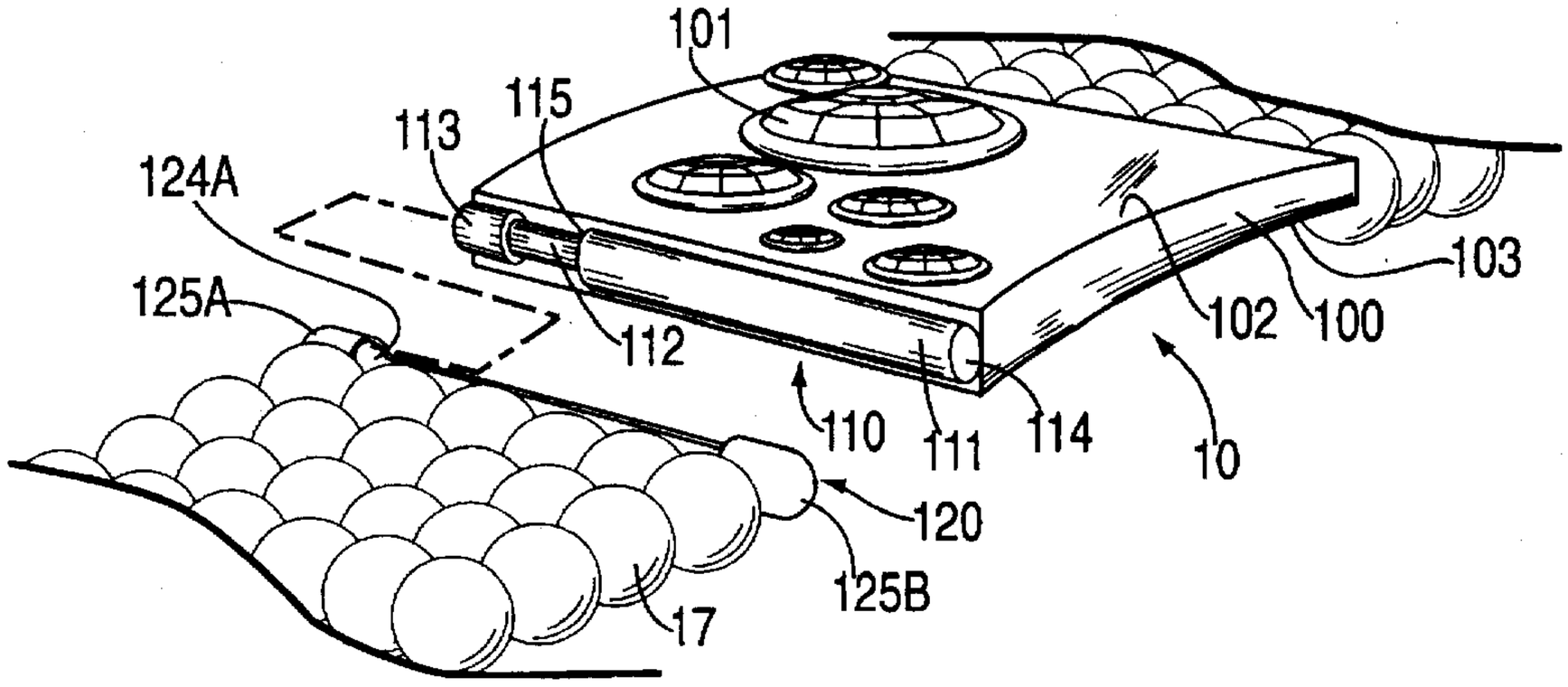
Assistant Examiner—Robert J. Sandy
Attorney, Agent, or Firm—Lieberman & Nowak, LLP

[57] **ABSTRACT**

An interchangeable clasp comprising a clasp body having a plurality of interconnecting elements consisting of a spring loaded connector member and a receiving recess. The connector typically comprises a hollow cylindrical sleeve and a rigid rod having an outside diameter less than the inner diameter of the hollow cylindrical sleeve. The rigid rod has a proximal end and an opposite distal end with respect to the hollow cylindrical sleeve. The proximal end is engaged with a spring mechanism within the hollow cylindrical sleeve that biases the distal end of the rod to a distal position and allows for movement of the rod between a proximal and a distal position. The distal end culminates in a head member with exterior dimensions such that the head member is capable of being removably inserted within, and retained by a cap end of the receiving recess. The receiving recess is cylindrical in dimension, has an opening through its outer wall and is capped at opposite ends for engaging the connector.

6 Claims, 4 Drawing Sheets

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115
113
124A
125A
112
102
100
103
110
111
114
10
120
125B
17

FIG. 1

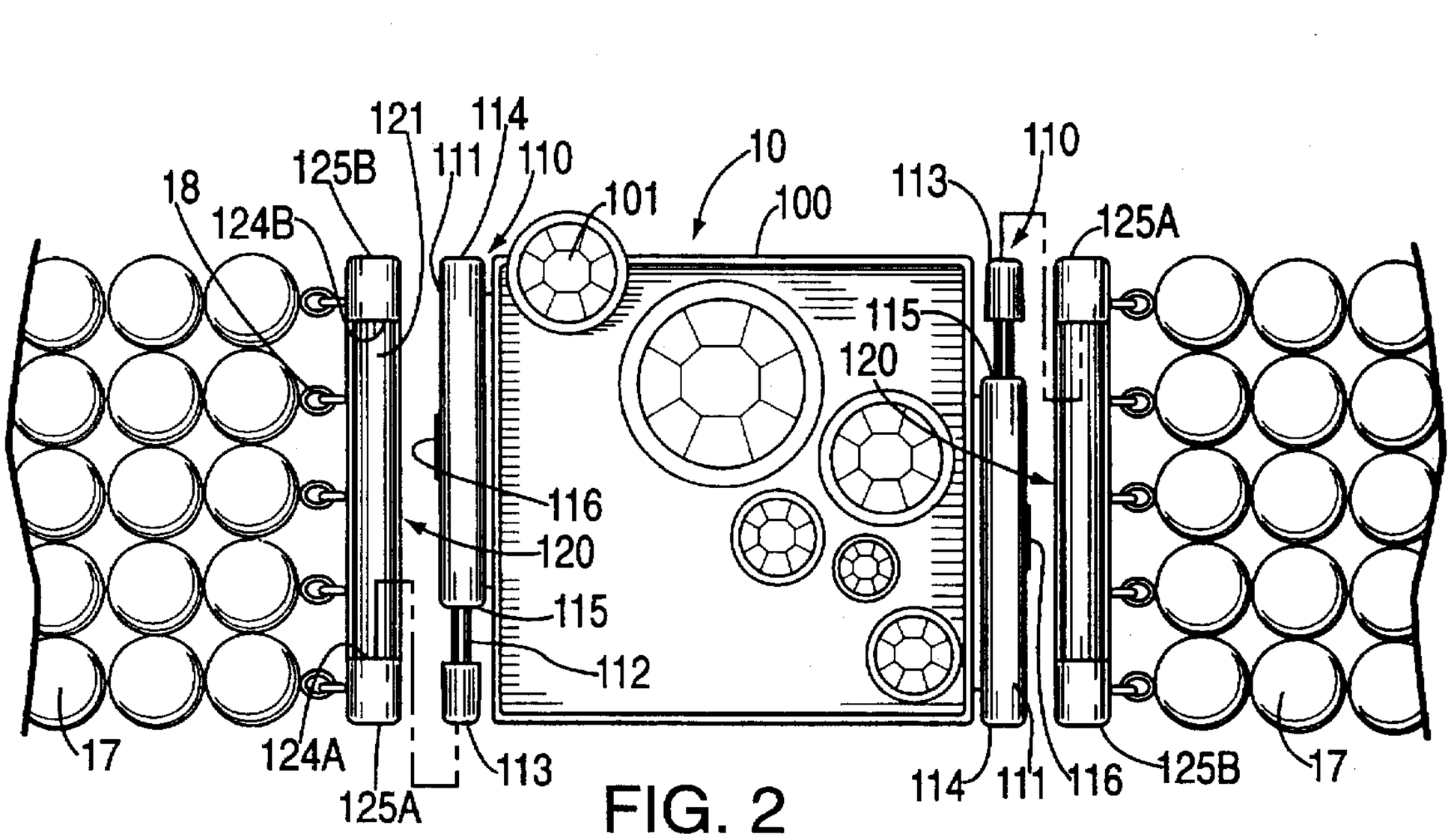
121
114
125B
111
110
10
18
124B
101
100
113
125A
115
120
116
120
115
112
17
124A
125A
113
114
111
116
125B
17

FIG. 2

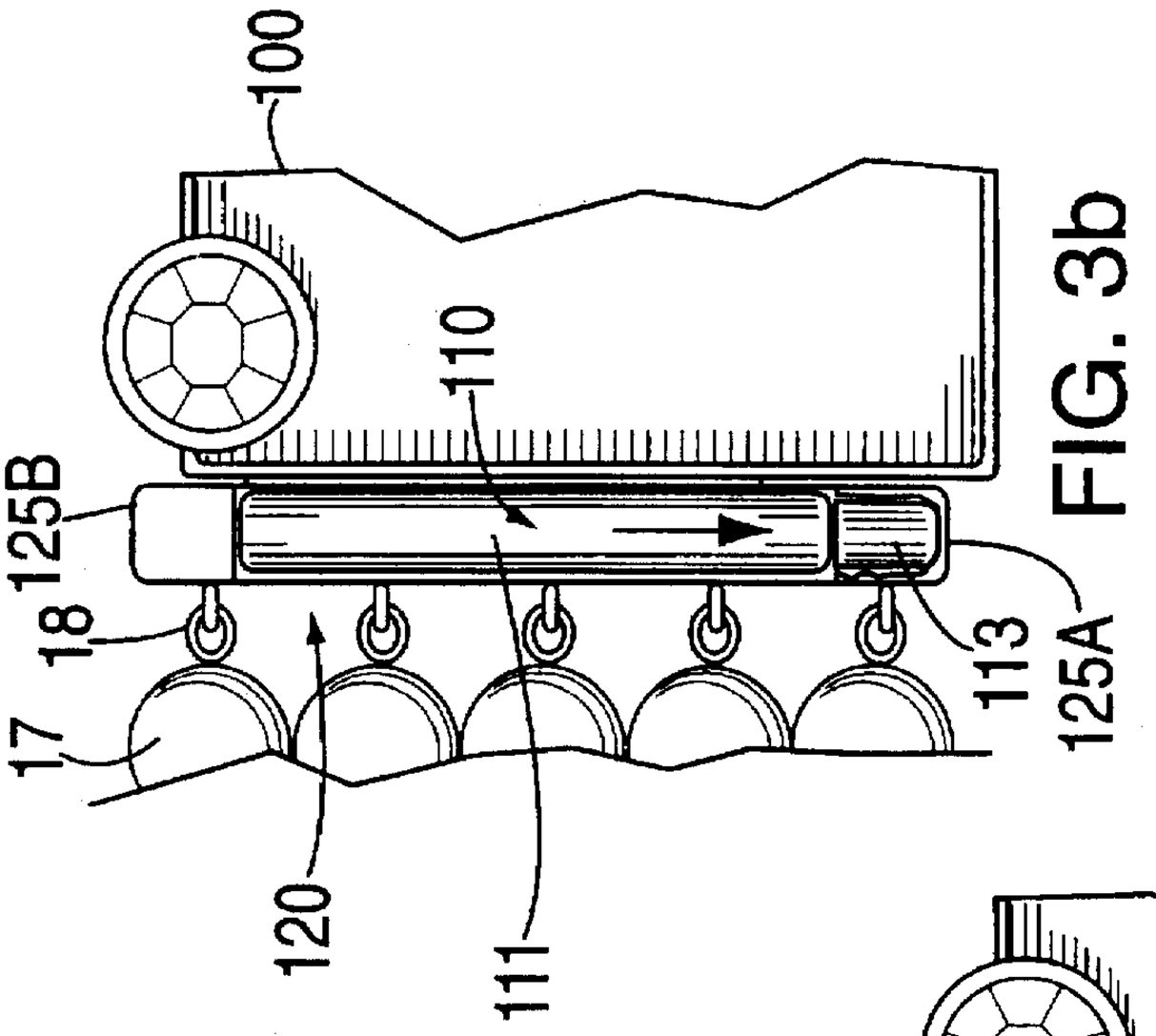

FIG. 3b

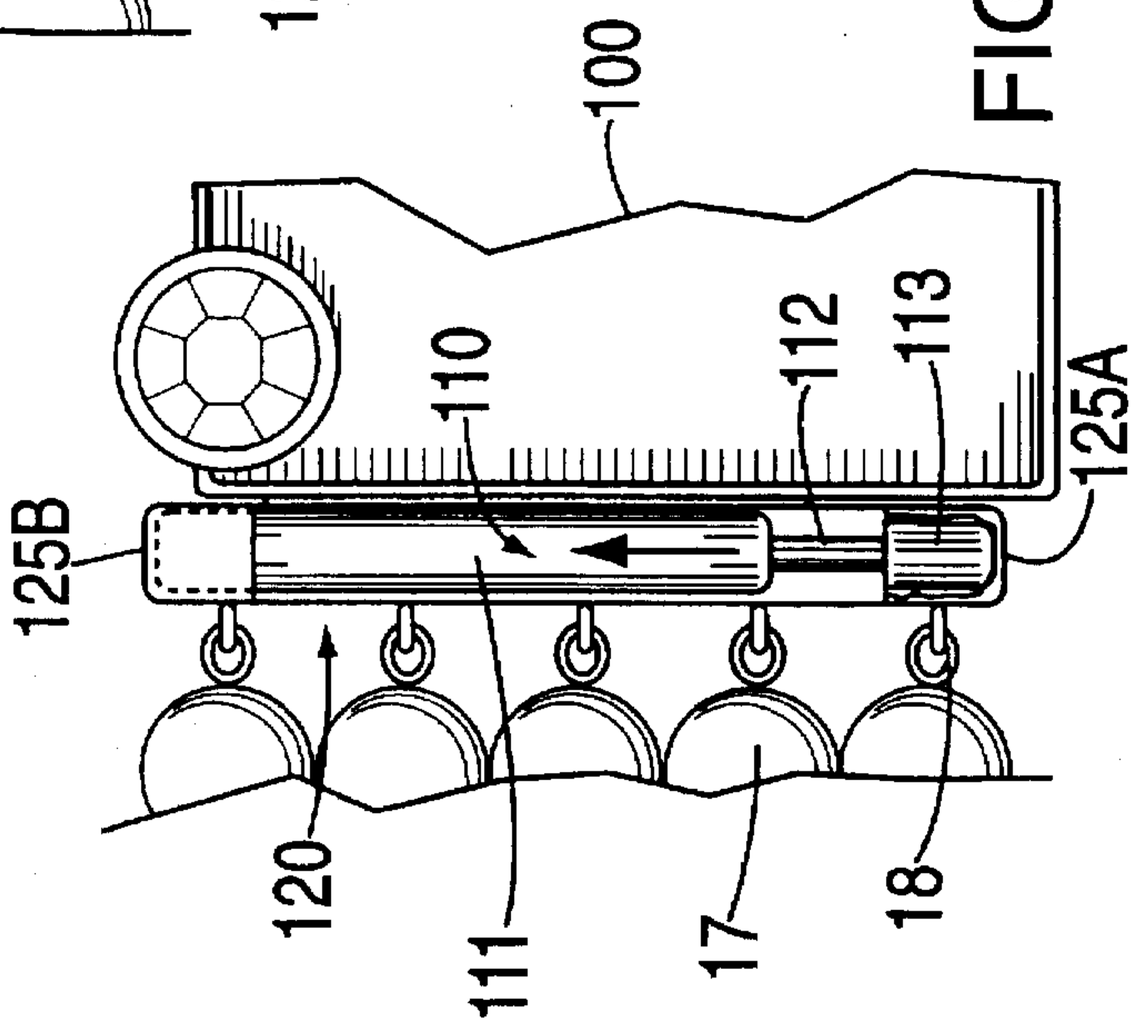

FIG. 3c

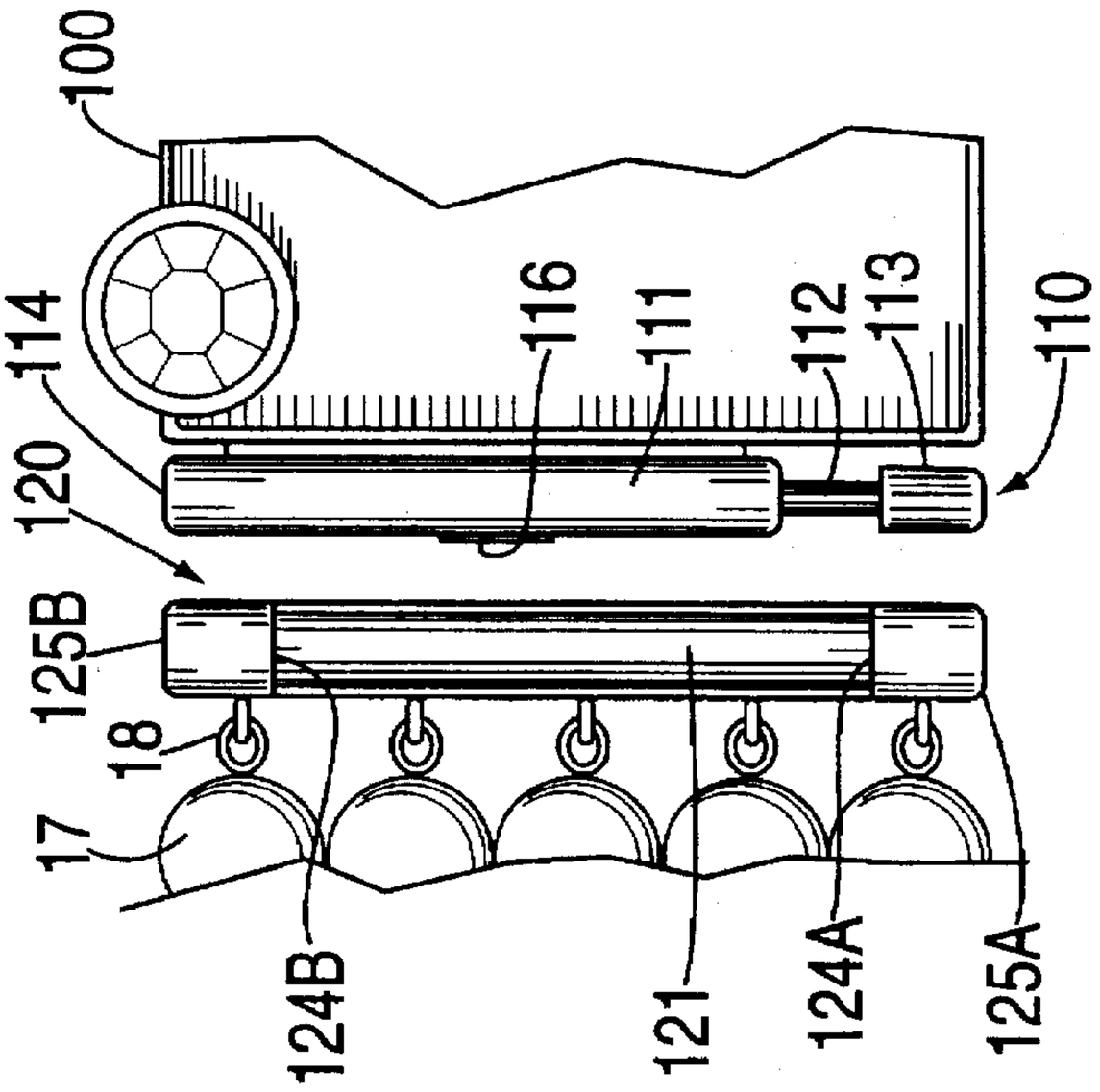

FIG. 3a

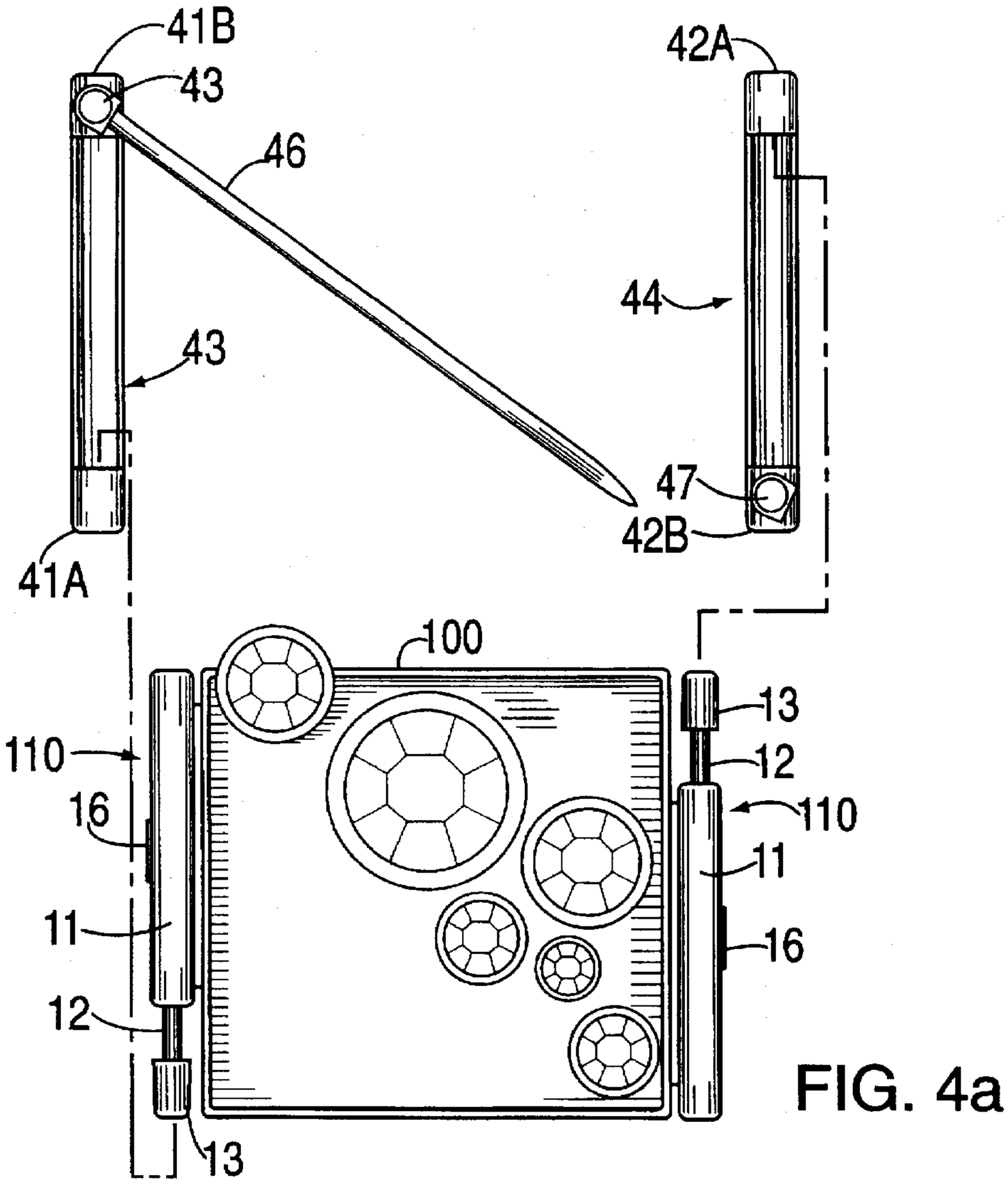
41B
43
46
43
41A
42A
44
47
42B
100
110
16
11
12
13
13
12
110
11
16

FIG. 4a

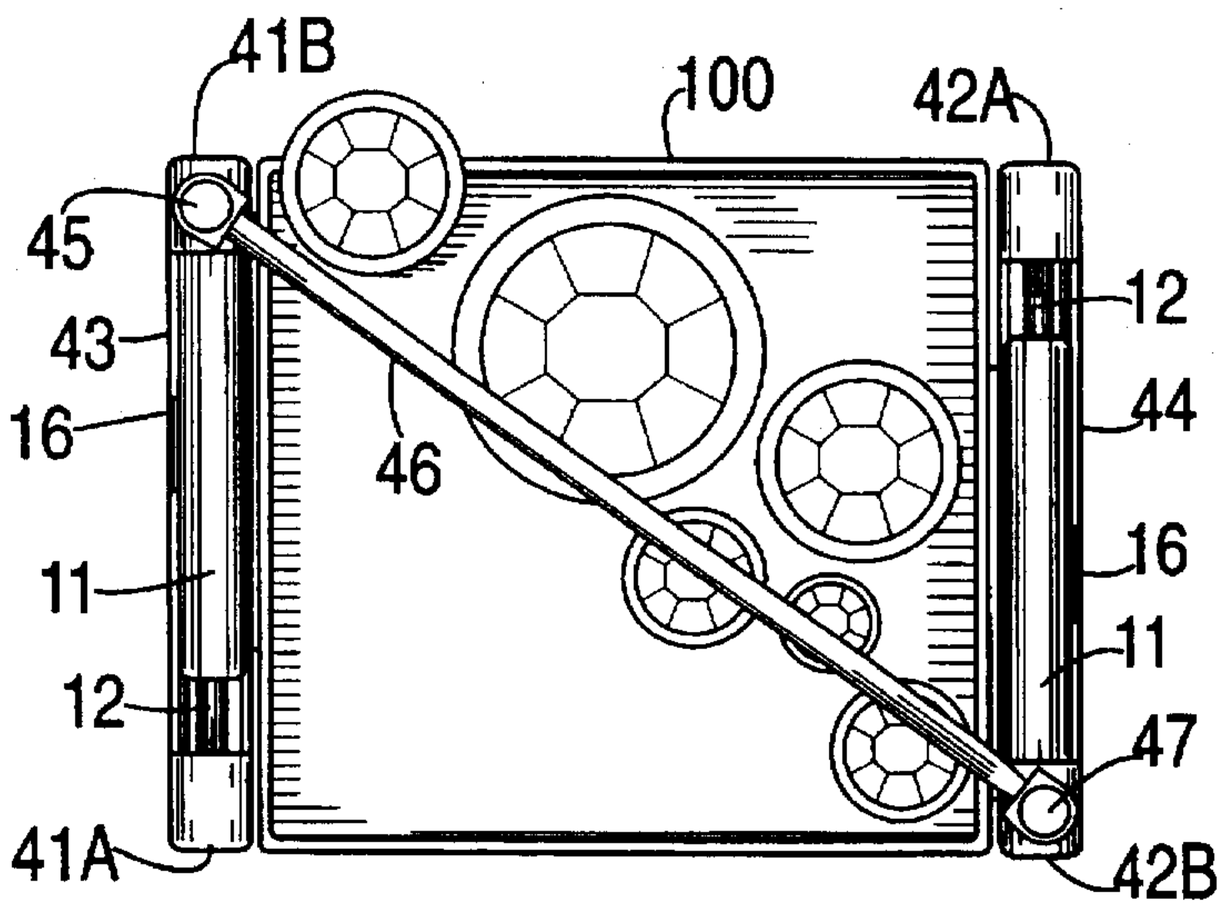
41B
100
42A
45
43
16
46
11
12
41A
12
44
16
11
47
42B

FIG. 4b

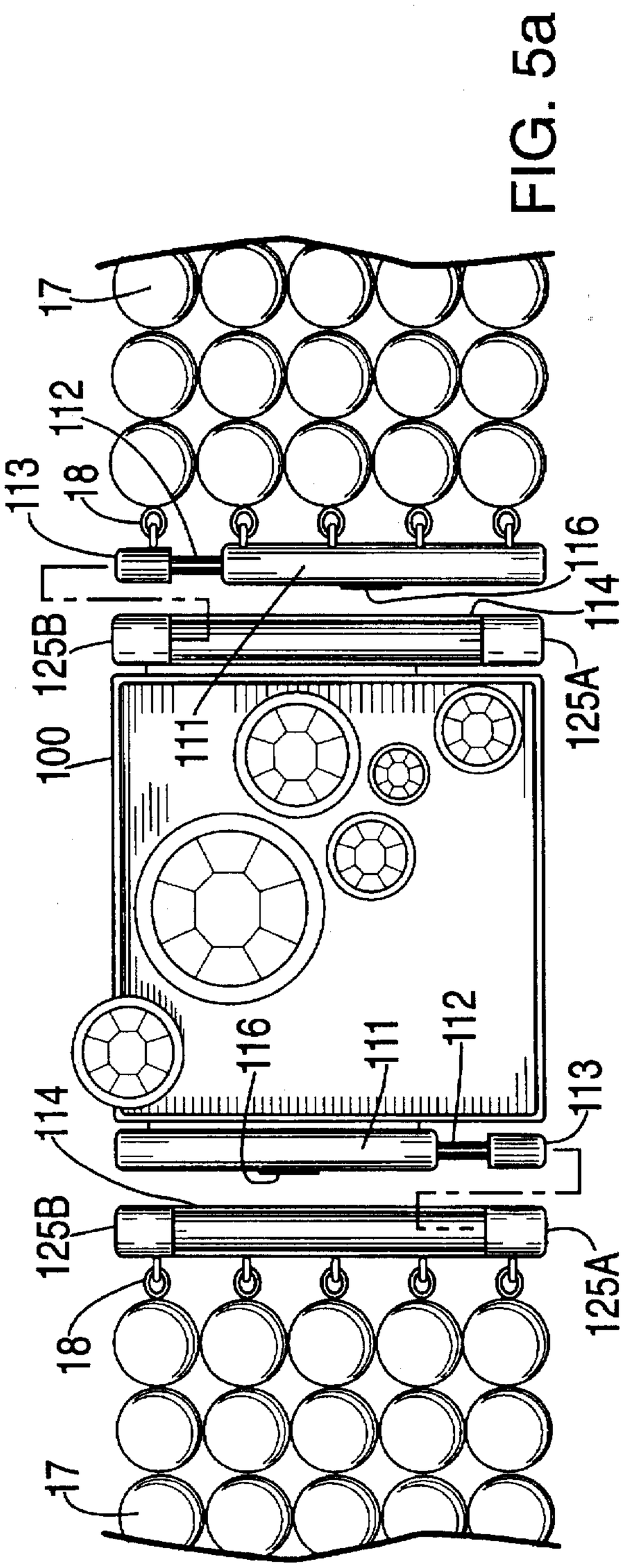
17
112
113
18
116
114
125B
125A
100
111
116
111
112
113
114
125B
18
125A
17

FIG. 5a

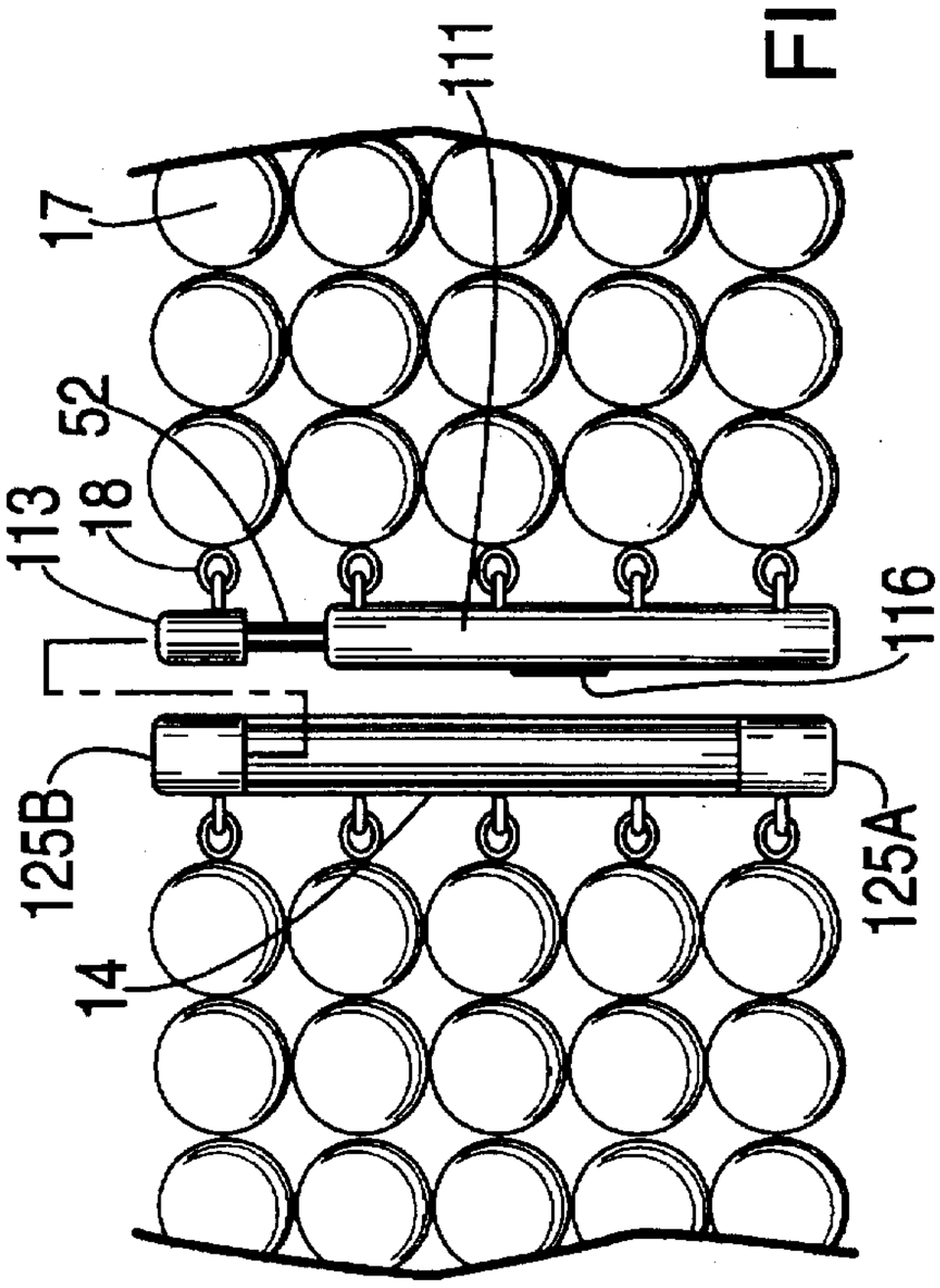
111
17
113
18
52
116
125B
14
125A

FIG. 5b

INTERCHANGEABLE CLASP

FIELD OF THE INVENTION

The subject invention relates to an interchangeable clasp which can be used with belts, pocketbooks, purses, handbags, satchels and jewelry such as necklaces, bracelets, pins and the like.

BACKGROUND OF THE INVENTION

Clasps having two receptacle ends for use in securing string jewelry are known. For example, Brogan, U.S. Pat. No. 2,051,591, issued Aug. 18, 1936, teaches a connecting member which uses a pressed up portion to exert biasing tension to hold a ball ended shank at the end of a piece of string jewelry in place.

A similar device was described by Rauer, U.S. Pat. No. 2,266,074, issued Dec. 16, 1941, which provides a clasp having a means for quickly changing the number and style of strings relative to the clasp. Similar to the Brogan clasp, the Rauer clasp uses a spring fastener to secure the string to the clasp.

Zerr, U.S. Pat. No. 2,586,758, issued Feb. 19, 1952, describes a jewelry chain connector with opposing side notches in which a plurality of chains can be interlocked. The connectors of Zerr may also utilize a fastening projection to form a brooch.

Another variation on a clasp for holding multiple chains or strings of jewelry is described by Lineberry, U.S. Pat. No. 4,486,925, issued Dec. 11, 1984. Lineberry's design uses a plurality of connecting members attached to a single clasp. Similarly, the jewelry chainstay of Murphy, U.S. Pat. No. 4,527,316, issued Jul. 9, 1985, can be used for attaching multiple ornamental chains to a single clasp. Other patents dealing with similar subject matter include Viot, et al., U.S. Pat. No. 4,665,494, issued May 19, 1987, Geldwerth, U.S. Pat. No. 3,360,836, issued Jan. 2, 1968, and Garfinkel, U.S. Pat. No. 2,113,786, issued Apr. 12, 1938.

U.S. Pat. No. 5,410,784, issued on May 2, 1995 to Katz, the applicant of the subject invention, related to a jewelry clasp having a generally cylindrically shaped connector which fits within a recess having a marginally larger volume and retaining means for keeping the connector in place.

SUMMARY OF THE INVENTION

The subject invention provides an interchangeable clasp which comprises a clasp body having a plurality of interconnecting elements consisting of a spring loaded connector member and a receiving recess. The connector member typically comprises a hollow cylindrical sleeve and a rigid rod having an outside diameter less than the inner diameter of the hollow cylindrical sleeve. The rigid rod has a proximal end and an opposite distal end with respect to the hollow cylindrical sleeve. The proximal end is engaged with a spring mechanism within the hollow cylindrical sleeve that biases the distal end of the rod to a distal position and allows for movement of the rod between a proximal and a distal position. The distal end culminates in a head member with exterior dimensions such that the head member is capable of being removably inserted within, and retained by a cap end of the receiving recess. The receiving recess is cylindrical in dimension, has an opening through its outer wall and is capped at opposite ends for engaging the connector.

In one preferred embodiment of the present invention the clasp body has a connector member on opposing edges of the clasp body. The connector members are removably

inserted within receiving recesses attached to opposite ends of a necklace strand or belt.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of one embodiment of the subject invention.

FIG. **2** is a top view of the embodiment of the subject invention of FIG. **1**.

FIGS. **3***a*–**3***c* illustrate the coupling of the connector member and the receiving recess of the subject invention.

FIGS. **4***a* and **4***b* are top views of one application of the subject invention wherein the clasp body is connected to a brooch structure.

FIGS. **5***a* and **5***b* are top views of a second embodiment of the subject invention wherein the clasp body is attached to one connector member and one receiving recess.

DETAILED DESCRIPTION OF THE INVENTION

The following description is of the preferred embodiments of the subject invention. These embodiments are set forth to provide a better understanding of the subject invention, but are not to be construed as limiting.

The subject invention relates to an interchangeable clasp which can be used with jewelry (necklace, bracelets, pendants, pins, etc.), belts, pocketbooks, purses, handbags, satchels and the like. Typically, the clasp is decorative in nature and may be adorned in any manner known to those skilled in the art.

The choice of material from which the clasp can be crafted will vary based on aesthetics and on the materials to which the clasp is to be affixed. By way of example, a clasp in accordance with the present invention to be used with costume jewelry may be crafted from any suitable base metal which could be shined, burnished or electroplated to provide a decorative look. Similarly, for elegant estate jewelry, a clasp could be made from a precious metal such a platinum, gold or silver an may be adorned with one or more stones. Of course the clasp could be formed from any suitably rigid material, such as a polymeric resin, plastic, graphite, metal, wood, stone, bond, shell or the like.

In the embodiment illustrated in the figures shown, stones **101** have been mounted in clasp body **100** and may be held in place by any known means. Other means of decoration are within the skill of the artisan. Since jewelry is an ancient and well developed art, the selection of materials, sizes, compositions, ornamental patterns, etc. are obvious, and accordingly will not be discussed in detail.

Referring to FIGS. **1** and **2**, clasp **10** comprises clasp body **100** and two connector members **110** connected at opposite edges of clasp body **100** by any suitable manner known to those skilled in the art, like soldering. Connector members **110** comprise: a hollow cylindrical sleeve **111** closed at end **114** and open at end **115**; a rigid rod **112** slidably positioned within hollow cylindrical sleeve **111** with a distal end extending from within hollow cylindrical sleeve **111**, through said open end **115**; and a head member **113** attached to said distal end. A spring mechanism (not shown) positioned within hollow cylindrical sleeve **111** enables relative movement between rigid rod **112** and hollow cylindrical sleeve **111** such that said distal end of rigid rod **111** can be moved from a position proximal to said open end **115** to a position distal to said open end **115**. Connector members **110** are configured generally as cylinders so as to slidably fit within receiving recess **120**. The term "cylinder" as used in

the subject application is to mean any elongated three dimensional shape. Examples of such shapes include, but are not limited to, triangular prisms, quadrilateral prisms, pentagonal prisms, hexagonal prisms, cones, etc.

Receiving recess **120** is defined by a hollow cylinder whose outer wall **121** only partially envelops the circumference and full length of the cylinder leaving a longitudinal opening through which one of the connector members **110** can be inserted. At opposite ends of the hollow cylinder of receiving recess **120**, caps **125**A and **125**B, respectively, are formed by outer wall **121**. The inner diameter of receiving recess **120** is designed so that a connector member **110** can slidably fit therein. Preferably, the fit between connector member **110** and receiving recess **120** is such that relative movement between them is minimized when they are engaged. Preferably, when fully extended, connector member **110** has an exterior volume substantially identical to or slightly smaller than the interior volume of receiving recess **120**.

The coupling between connector member **110** and receiving recess **120** is illustrated in FIGS. **3***a*–**3***c*. In FIG. **3***a* connector member **110** and receiving recess **120** are shown as separate elements. To couple the connector member **110** with receiving recess **120**, head member **113** is first inserted within receiving recess **120** and guided through open end **124**A of cap **125**A. Hollow cylindrical sleeve **111** is subjected to a force toward head member **113** so as to compress the spring mechanism therein (not shown) until the closed end **114** of hollow cylindrical sleeve **111** clears open end **124**B of cap **125**B. In this regard it should be noted that the length of circumferential walls of caps **125**A and **125**B should be designed with a length not greater than the difference between the length of receiving recess **120** and connector member **110** in its fully compressed state, defined as where rigid rod **112** is in its most proximal position relative to hollow cylindrical sleeve **111**. At this point the entire connector member is inserted within receiving recess **120**. The force on hollow cylindrical sleeve **111** is released, causing rigid rod **112** to extend under bias of the spring mechanism (not shown), to its distal position. As a result, closed end **114** passes through open end **124**B of cap **125**B and becomes engaged within cap **125**B. As mentioned previously, the fit between connector member **110** and receiving recess **120** should be such that relative movement is minimized when they are engaged. Therefore, the full length of receiving recess **120** should be at least slightly smaller than the length of connector member **110** and the length of the smaller of cap **125**A or cap **125**B.

As shown in FIGS. **1–3** and **5** clasp **10** may be coupled with a strap, string of beads or the like, chain, etc., generically referred to herein as length **17**, where length **17** is attached by means **18** well known in the art, to: a connector member **110** on one end and a receiving recess **120** on an opposite end; two connector members **110** on opposing ends; or two receiving recesses **120** on opposing ends. In other words, length **17** includes a set of connecting elements consisting of connector member **110** and receiving recess **120**, that is complimentary to the set of connecting elements on clasp **10**.

Referring to FIGS. **4***a* and **4***b*, a second application of the subject invention is shown wherein clasp **10** is coupled to a brooch structure for affixing clasp **10** to an object such as a shirt, blouse, skirt, satchel, etc. The brooch structure comprises a first receiving recess **43** and a second receiving recess **44** to engage connector members **110** of clasp **10** as previously described. Receiving recesses **43** and **44** are substantially identical to receiving recess **120**, differing only to the extent necessary to provide for the functionality of a brooch. More specifically, receiving recess **43** is connected to a pin **46** at the outside wall of cap **41**B with connecting means **45**, well known in the art. Receiving recess **44** includes a pin receiving means **47** well known in the art on cap **42**B. When engaged one connector member **110** of clasp **10** is inserted within receiving recess **43** through cap **41**A and the other connector member **140** is inserted within receiving recess **44** through cap **42**A. The orientation of connector members **110** and receiving recesses **43** and **44** when engaged is such that pin **46** traverses the back **103** of clasp body **110**.

Although not depicted, clasp body **110** may include any number of receiving recesses **120** into which connector member **110** may be inserted. For necklace applications, this number is typically two. For brooch applications, this number will typically be from one to four.

Receiving recesses **120** and connector member **110** may be used for securing additional connector members **110** and receiving recesses **120**, respectively, having decorative features attached thereto.

FIGS. **5***a* and **5***b* show a second embodiment of clasp **10** of the subject invention having one connector member **110** and one receiving recess **120** attached to opposing sides of clasp body **100**.

The interchangeable clasp **10** permits a single clasp to be used in multiple applications and is designed to be aesthetically pleasing to the eye while enhancing the overall design of the item to which it is affixed. For example, clasp **10** may be used at one time to join one or more strings of jewelry, (e.g. one end of a necklace to the other, one end of a bracelet to the other, or necklace to necklace and/or bracelet to bracelet, to change length), at a subsequent time to secure two ends of a belt and another time to be worn as a brooch. In all cases, the clasp provides decoration, structure and the artistic and economic advantage of being transferable from one item to another. The later advantage becomes obvious when one considers that three chains and three clasps affords nine necklaces, i.e. by mixing and matching. Accordingly, the subject clasp is both ornamental and multifunctional.

Upon reading the subject application, numerous variations and alternative embodiments will become obvious to those skilled in the art. These alternative embodiments are to be considered within the scope and spirit of the subject invention. The subject invention is only to be limited by the claims which follow and their equivalents.

What is claimed is:

1. An interchangeable clasp comprising:

a clasp body; and

a plurality of connecting elements attached to said clasp body, said connecting elements selected from the group consisting of a connector member and a receiving recess, said connector member comprising

a hollow cylindrical sleeve having one closed end and one open end,

a rigid rod having a proximal end slidably mounted within said hollow cylindrical sleeve, and an opposite distal end extending through said open end, and

biasing means for biasing said distal end of said rigid rod toward a distal position and allowing for movement of said rigid rod between a proximal and a distal position relative to said hollow cylindrical sleeve, and

said receiving recess being cylindrical in dimension, having an opening to its exterior, and having a cap at each of its opposite ends for removably engaging said connector member when inserted through said opening and within said caps.

2. An interchangeable clasp according to claim 1 wherein said connector member further comprises a head member attached to said distal end of said rigid rod, configured so as to removably fit within one of said caps of said receiving recess.

3. An interchangeable clasp according to claim 1 wherein said clasp body is attached to one connector member and one receiving recess.

4. An interchangeable clasp according to claim 1 wherein said clasp body is attached to two connector members.

5. An interchangeable clasp according to claim 1 wherein said clasp body is attached to two receiving recesses.

6. A brooch structure comprising:

a first connecting element having a pin attached thereto; and

a second connecting element having pin receiving means attached thereto, said first and second connecting elements selected from the group consisting of a connector member and a receiving recess, said connector member comprising

a hollow cylindrical sleeve having one closed end and one open end,

a rigid rod having a proximal end slidably mounted within said hollow cylindrical sleeve, and an opposite distal end extending through said open end, and

biasing means for biasing said distal end of said rigid rod toward a distal position and allowing for movement of said rigid rod between

a proximal and a distal position relative to said hollow cylindrical sleeve, and

said receiving recess being cylindrical in dimension, having an opening to its exterior, and having a cap at each of its opposite ends for removably engaging said connector member when inserted through said opening and within said caps.

* * * * *